

Two mannequins with extremely long legs, wearing dark pinstriped suits and yellow shirts, standing against a solid orange background. The mannequins are positioned on the left side of the slide, with their legs extending down to the bottom of the frame.

From small-scale generative images to global picture of HCI

Jonas Oppenlaender, Postdoctoral Researcher
University of Oulu, Finland

MBZUAI Research Talk, Nov 3, 2025



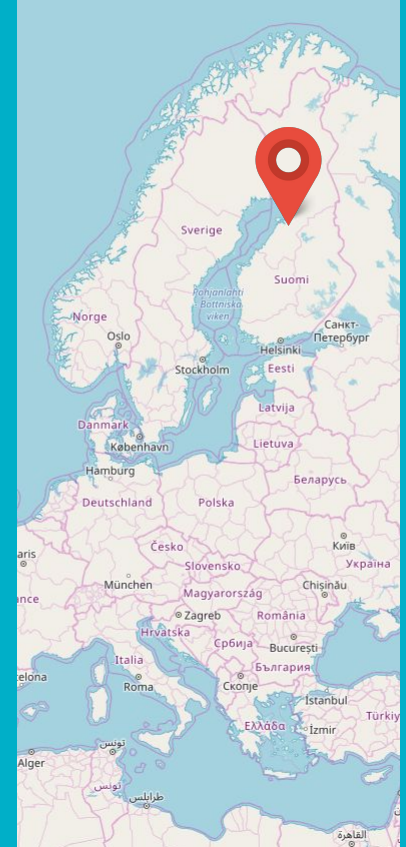
prompt: “*elongated surreal synchronized elongated legs*”

Jonas Oppenlaender
Postdoctoral Researcher
University of Oulu
Finland

Generative AI, Creativity, and “Meta-HCI”

Ph.D. (2021), Human–Computer
Interaction, University of Oulu

M.Sc., (2015) Computer Science,
University of Southampton

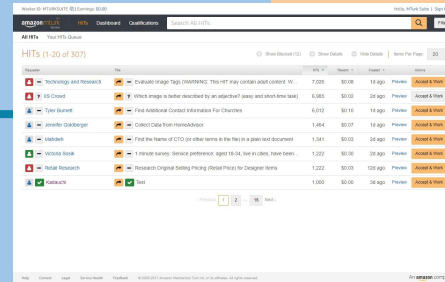


2018-2021

Creative Crowdsourcing / Creativity Support Systems



Workers

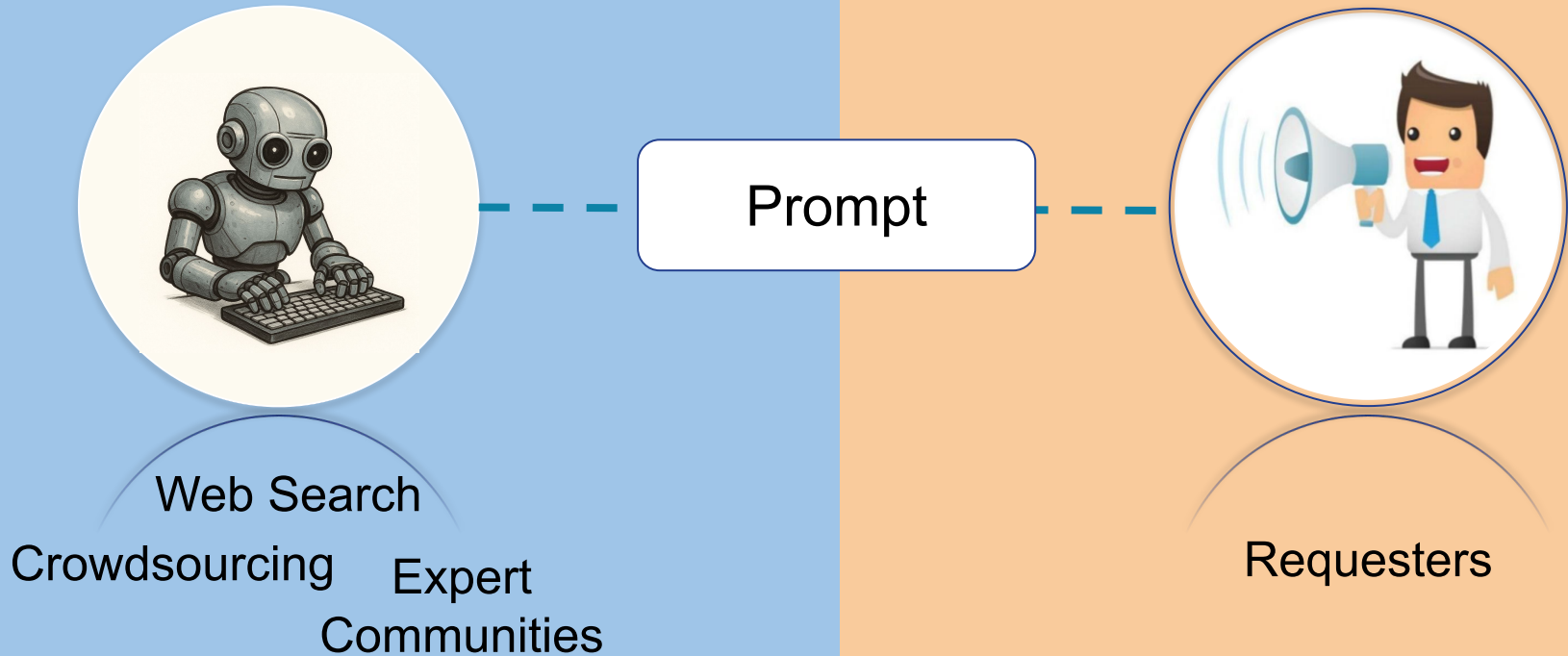


Crowdsourcing
Platform
(e.g., Amazon
Mechanical Turk, Prolific)



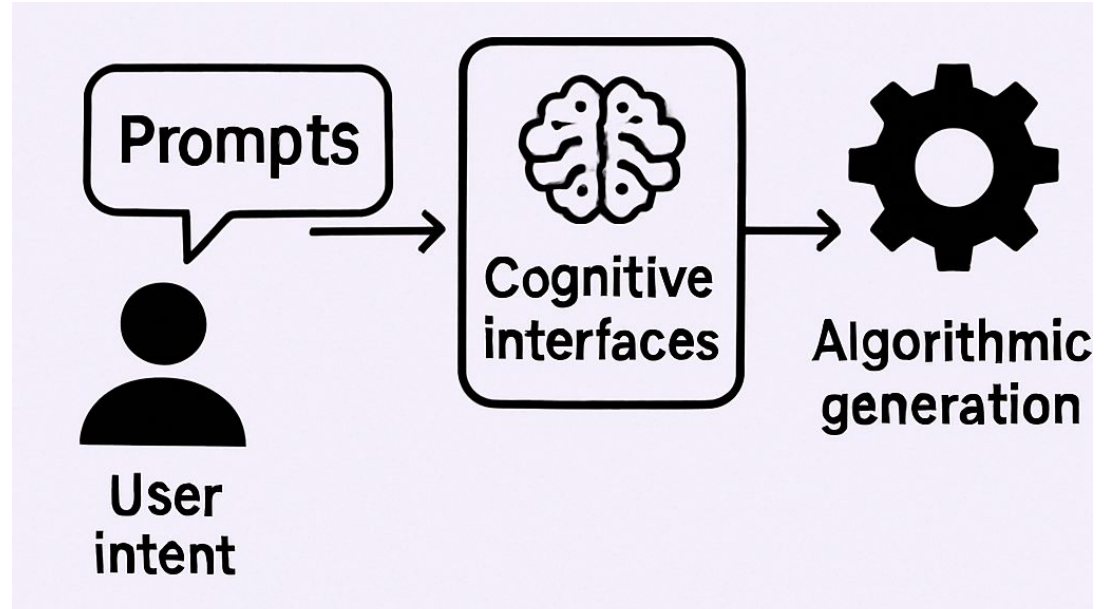
Requesters

2022- Generative Artificial Intelligence



Prompts as mediators of intent

“Prompts function as cognitive interfaces that mediate between user intent and algorithmic generation”
(Daalsgard 2025)

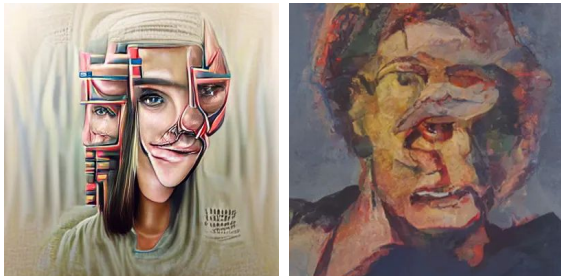


2022–

“Prompt Engineering” as a Paradigm Shift

From: Human-Computer Interaction
To: Human-AI Interaction

Experiments with
VQGAN–CLIP



2021

Midjourney
1st-wave Betatester



2022

**Understanding Prompting
as an End-User Interface
(in TTI generation)**

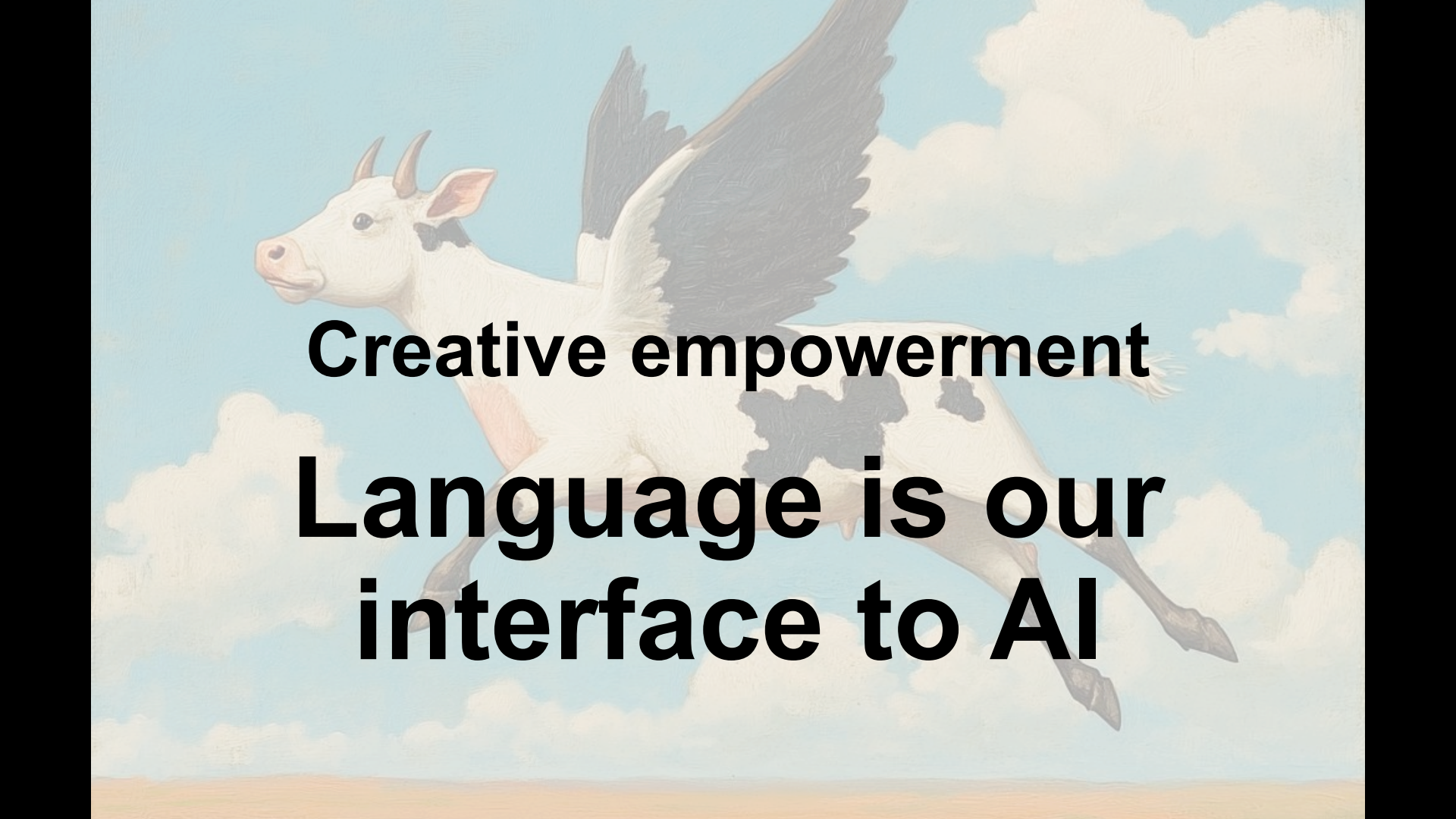
Creativity

Misalignment

**Understanding Prompting
as an End-User Interface
(in TTI generation)**

Creativity

Misalignment



Creative empowerment
Language is our
interface to AI



Creative empowerment?

**Language is our
imperfect interface to AI**

Creativity

**What does it mean
to be creative
with text-to-image
generation?**

image generated with Midjourney



prompt: "creativity"



Prompt Engineering Prompt Design

- Labor-intensive
- Iterative human effort
- Specialized expertise
- Lack of standards

“while some prompts resemble natural language, many of the most ‘successful’ prompts do not”

Meredith Ringel Morris (2024): Prompting Considered Harmful. Communications of the ACM.
<https://doi.org/10.1145/3673861>

The **photograph**, taken with a **Canon EOS** and a **SIGMA Art Lens 35mm F1.4**, is a **masterclass** in **photographic precision**, with **ISO 200** and a **shutter speed of 2000** ensuring every **detail** is **flawlessly rendered**.

A completely **unrealistic glowing animal sitting on a branch in the forest**.

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Prompt Engineering Prompt Example



User @milkytaste, 2024



Taxonomy of Prompt Modifiers for TTI Generation

- **Style modifiers**
 - concept art, oil painting, photorealistic, ...
- **Quality Boosters**
 - high quality, 8k, highly detailed, artstation, ...
- **Repeating terms**
 - spacewhale, a whale in space
- **Magic terms**
 - feel the sound
- **Image prompts**



Jonas Oppenlaender. 2023. A Taxonomy of Prompt Modifiers for Text-To-Image Generation. *Behaviour & Information Technology* (2023), <http://dx.doi.org/10.1080/0144929X.2023.2286532>



The 4P of Text-to-Image Generation

Creativity

Practitioner

Digital image;
prompt

Choice of prompt

Iterative prompt
optimization; editing; tools

Adaption of prompts and
modifiers from other
creators

(Rhodes' 4P of Creativity)

Product:

artifacts = observable
outcome (e.g., poem,
painting, sculpture)

Person:

personality, intellect, habits,
attitudes, ...

Process:

thinking, motivation,
learning, ...

Press:

environment of the creative
individual

Viewer

Digital image;
prompt (only if shared)

n/a

n/a

n/a

Creativity

“Standard” Definition of Creativity

Criteria 1:

Novelty

Criteria 2:

Usefulness / Appropriateness / Value



Runco and Jaeger (2012): The Standard Definition of Creativity.
Creativity Research Journal, 24(1), 92-96, Taylor & Francis.
<https://doi.org/10.1080/10400419.2012.650092>

Prompt: “*elongated surreal synchronized elongated legs*” 16

Edge Case 1: **Non-creative image generation?**

- (1) Music lyrics
- (2) Random snippets of text
- (3) Single characters & emojis

Edge Case 2: **Innovative image generation?**

Highly creative practitioners seek to innovate by writing novel prompts that deviate from past prompts

Prompt: “invalid cell in the valid world”



Creativity

Image Generation Experiments

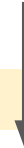
→ Mode Collapse



Creativity

Mode Collapse on Midjourney

Tagalog



bata

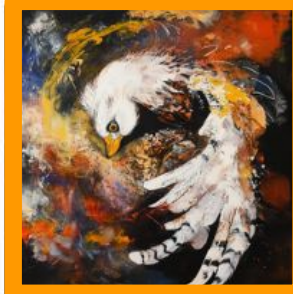
(child)

seed 123456 v 6.1 stylize 0

apoy

(fire)

seed 123456 v 6.1 stylize 0



Creativity

Default Image Prompts

Unique Names: *Nuoka Zuberi, Shelan Creswell, Soraya Lonescu, ...*

URLs: *www.amazon.com, www.bing.com, www.chatgpt.com, ...*

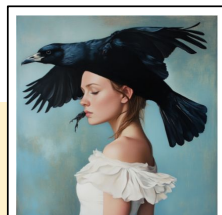
Finnish: *maito, kinkku, suola, ...*

Tagalog: *apoy, bata, pagpag, ...*

Glitch Tokens: *Rawdownload, PsyNetMessage, ...*

Corrupted Words: *Greagoft, Shuttastfr, Shuttagolt, ...*

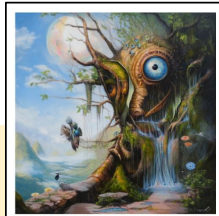
Abbreviations: *bcd, gsod, dqae, ...*



Lady-Birdhead



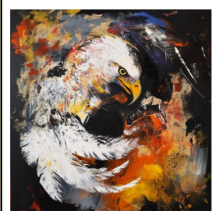
Floating-Head



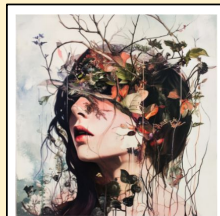
Psychedelic-Eye



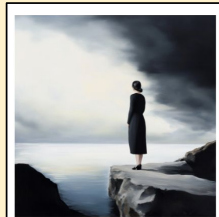
Animal-Bush



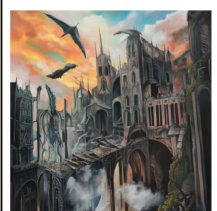
Eagle-Circle



Growth-Face



Standing-Lady



Fantasy-Castle



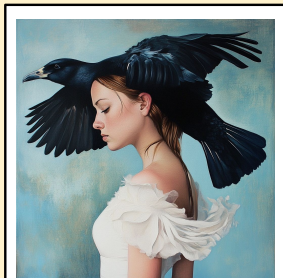
Mirror-Lady



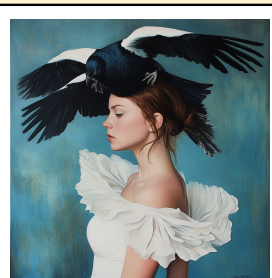
Headpiece-Lady

Creativity

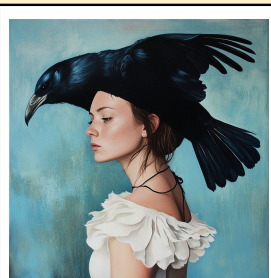
Lady Birdhead



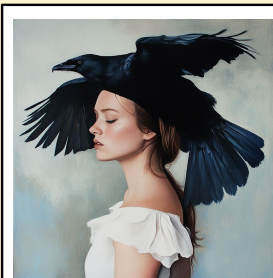
bcd



greamylt



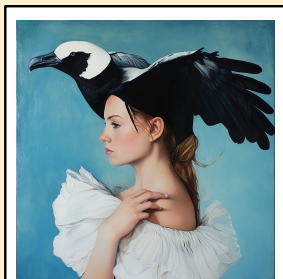
greawarz



kasvi



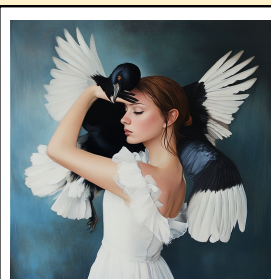
kinkku



suola



Shelan Creswell



Soraya Lonescu



Tzivani Rhekai

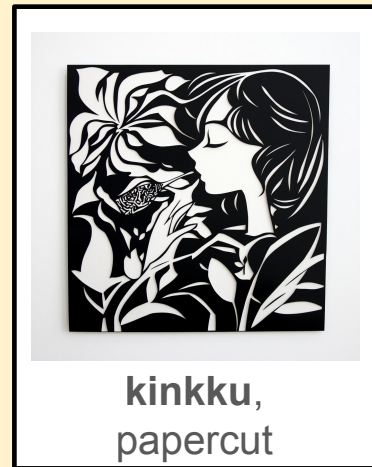
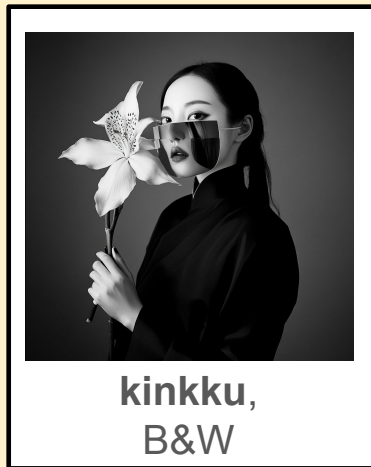
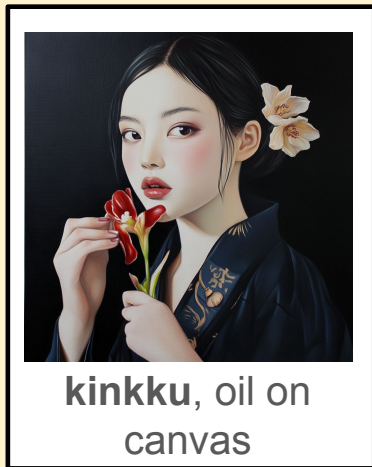


www.tumblr.com

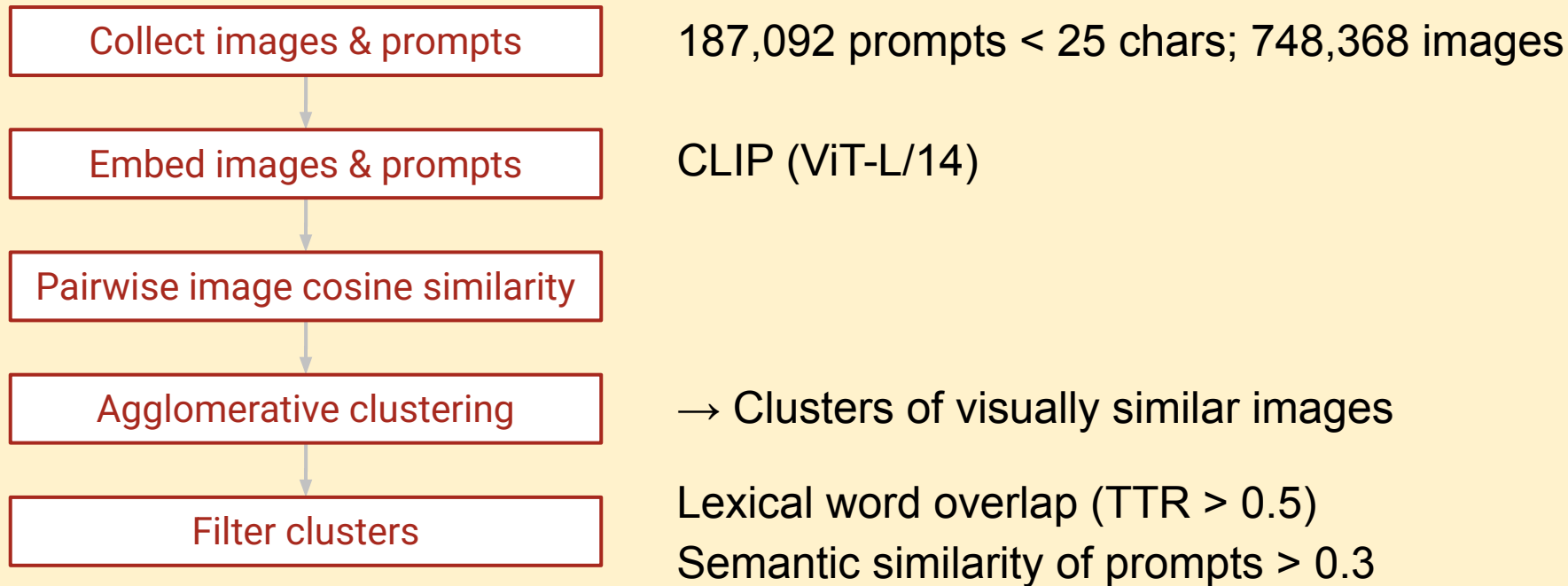
Hannu Simonen, Atte Kiviniemi, Hannah Johnston, Helena Barranha, and Jonas Oppenlaender (2025):
An Exploration of Default Images in Text-to-Image Generation. <https://arxiv.org/abs/2505.09166>

Creativity

Default image concepts behave like normal concepts



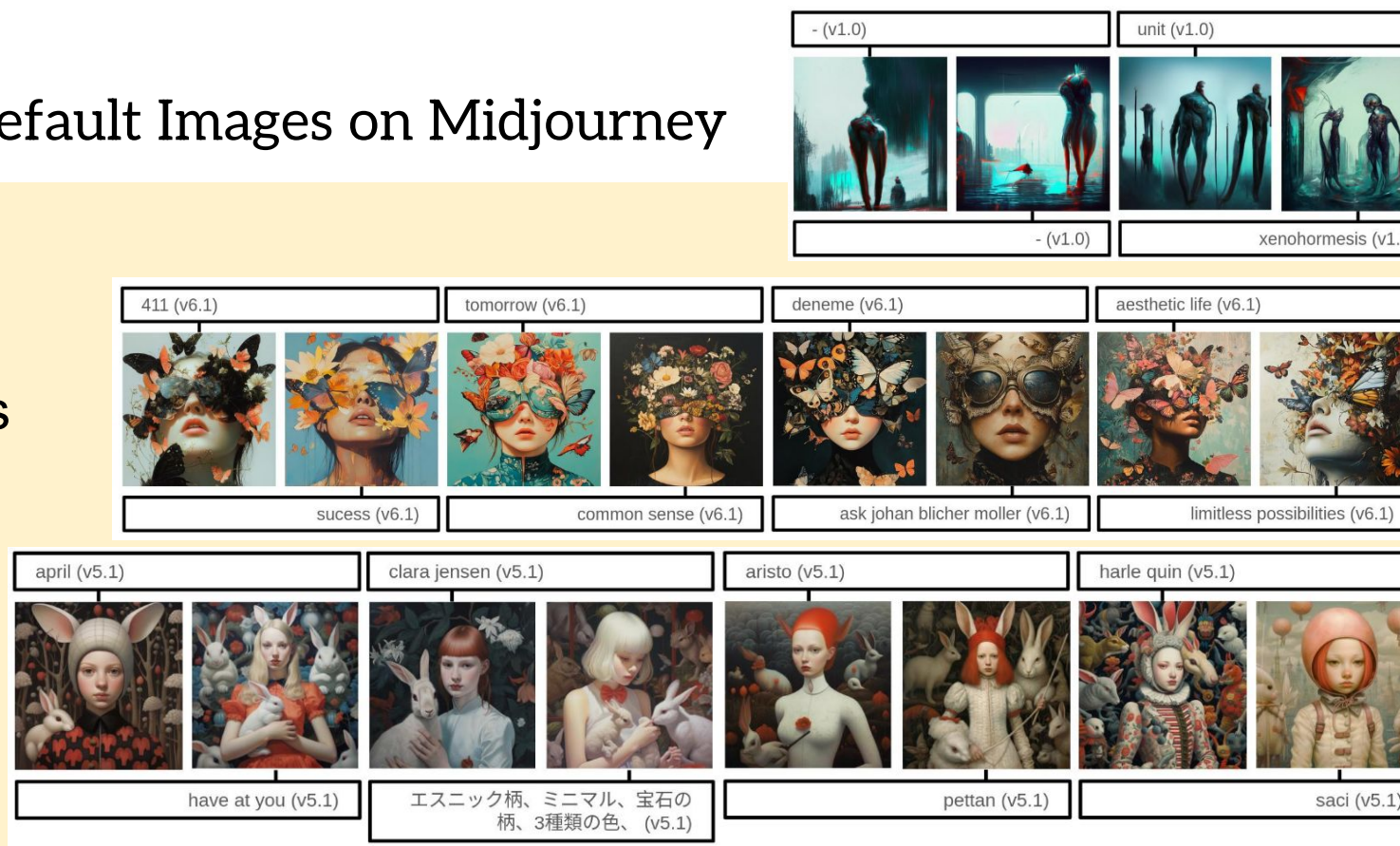
Identifying Default Images on Midjourney



Creativity

Identifying Default Images on Midjourney

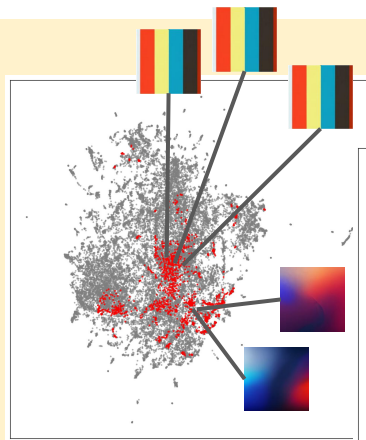
Result:
4.8% potential
default images
(in dataset)



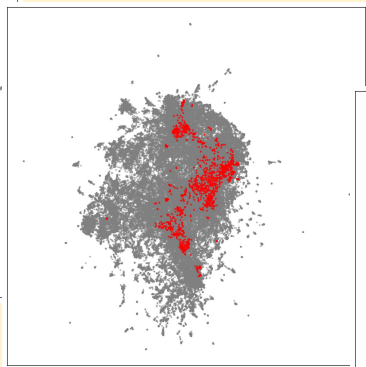
Hannu Simonen, Atte Kiviniemi, Hannah Johnston, Helena Barranha, and Jonas Oppenlaender (2025):
An Exploration of Default Images in Text-to-Image Generation. <https://arxiv.org/abs/2505.09166>

Creativity

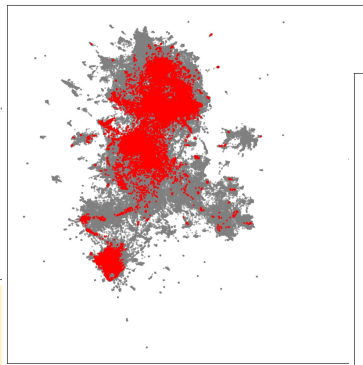
Identifying Default Images on Midjourney



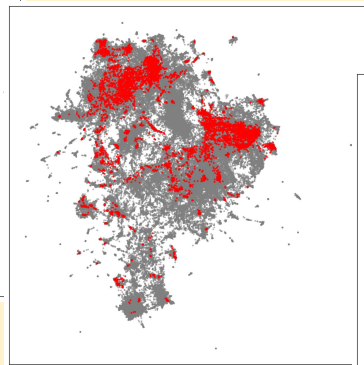
Midjourney v1



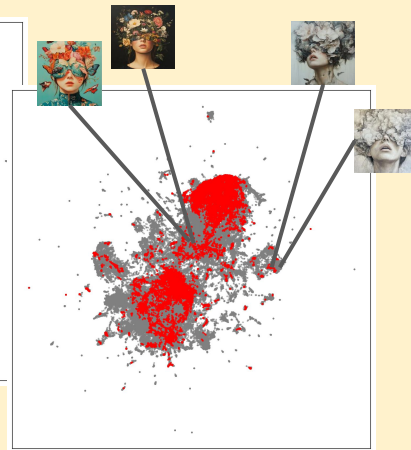
v2



v3



v4



v6

Hannu Simonen, Atte Kiviniemi, Hannah Johnston, Helena Barranha, and Jonas Oppenlaender (2025):
An Exploration of Default Images in Text-to-Image Generation. <https://arxiv.org/abs/2505.09166>

Creativity

Innovative Image Generation?

- Default images can stop, but also derail the creative process
- Highly creative practitioners are “punished” with default images
- Frustration, a sense of lost control over the creative process
- Undermines user trust, agency, perceived accuracy and, usability



prompt: “modernika”

Social Creativity

Challenges of Text-to-Image Generation in Public Spaces

C1: Individual use

C2: Limited control

C3: Language barrier

C4: Low engagement



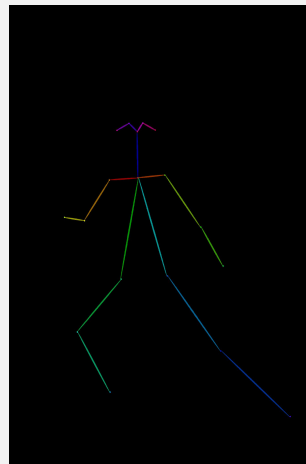
“Bodyprompting”

Source artwork



User

Pose



Output



Jonas Oppenlaender, Hannah Johnston, Johanna Silvennoinen, and Helena Barranha (2025):
Artworks Reimagined: Exploring Human-AI Co-Creation through Body Prompting. In Proc. ACM
Hum.-Comput. Interact. (PACM-EICS). <https://dx.doi.org/10.1145/3734189>

Social Creativity

Study Procedure

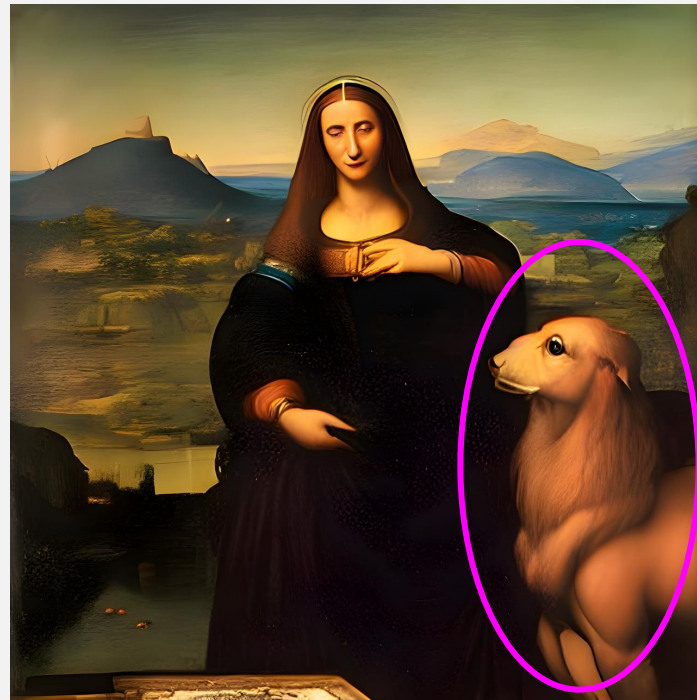
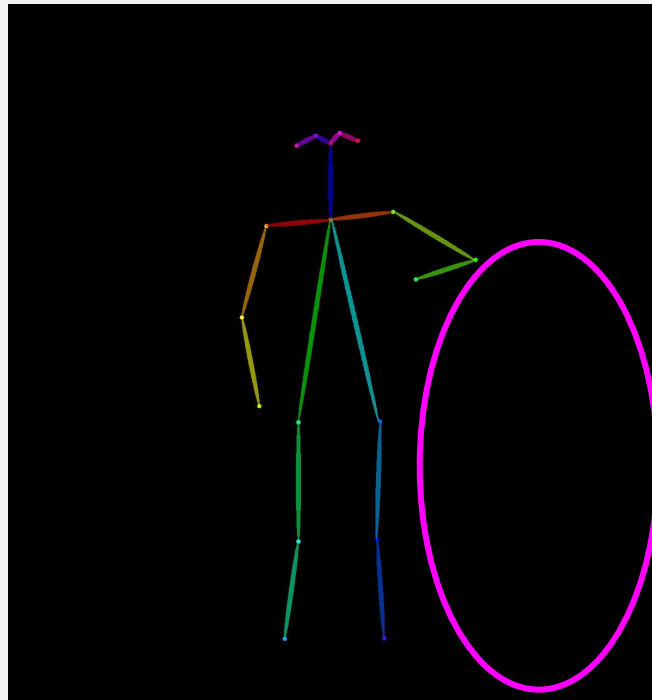
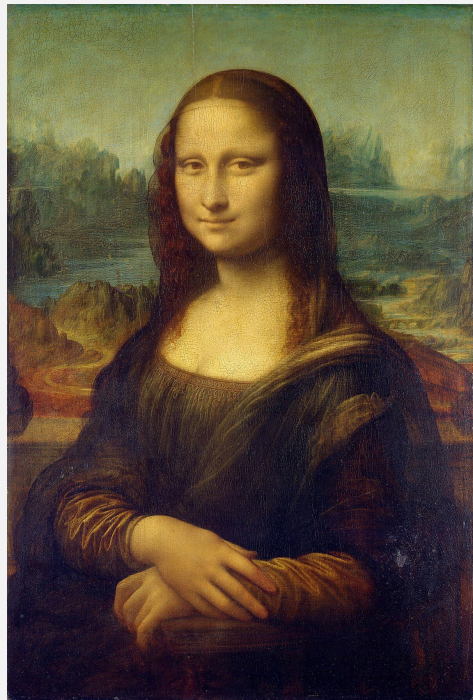


172 images; 6 hours; 79 interviews (~37 years, max 68 years)

44 group images (56%), 35 individual participants (44%)

Engaging & “fun” experience

AI Hallucinations



AI Hallucinations

Location of hallu- cination	Narrative change	Example	Hallucination	Frequency	Description
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**Understanding Prompting
as an End-User Interface
(in TTI generation)**

Creativity

Misalignment

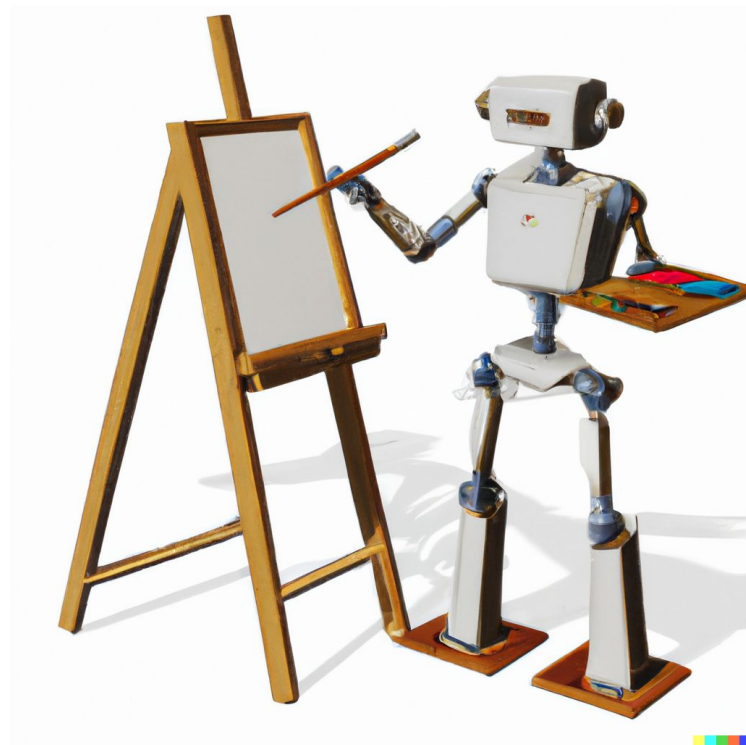
**“Prompt engineering”
as a symptom
of misalignment**

Misalignment

Randomness of first generated image

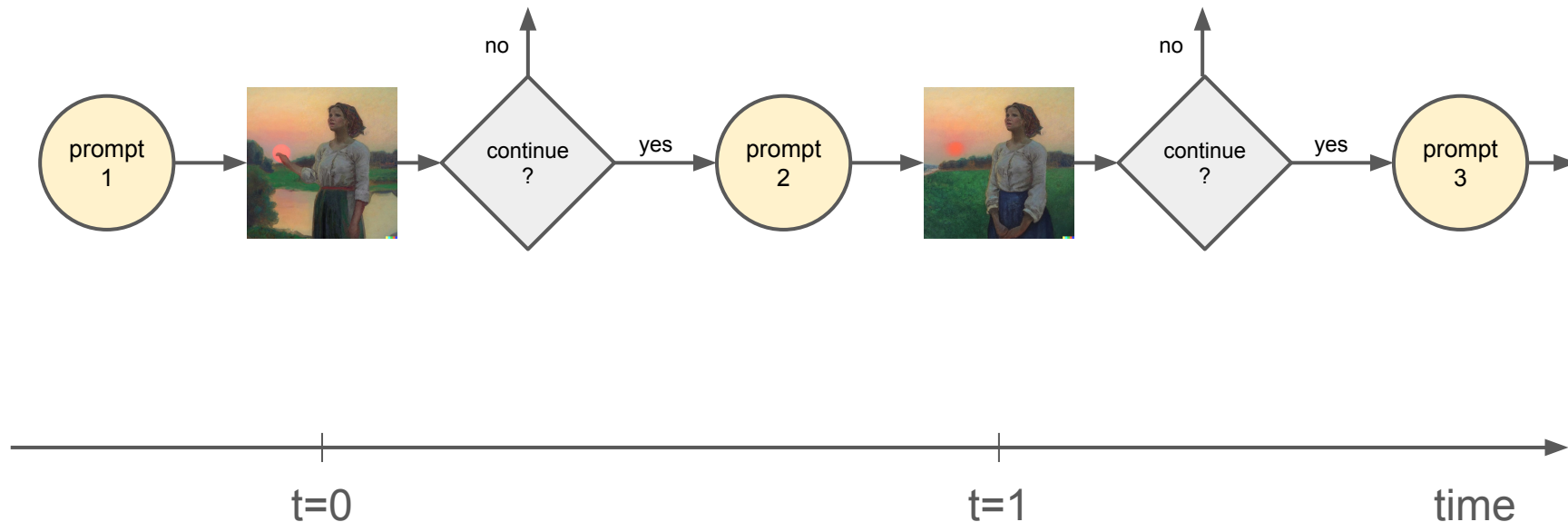


prompt: "April 23, 1986"



Misalignment

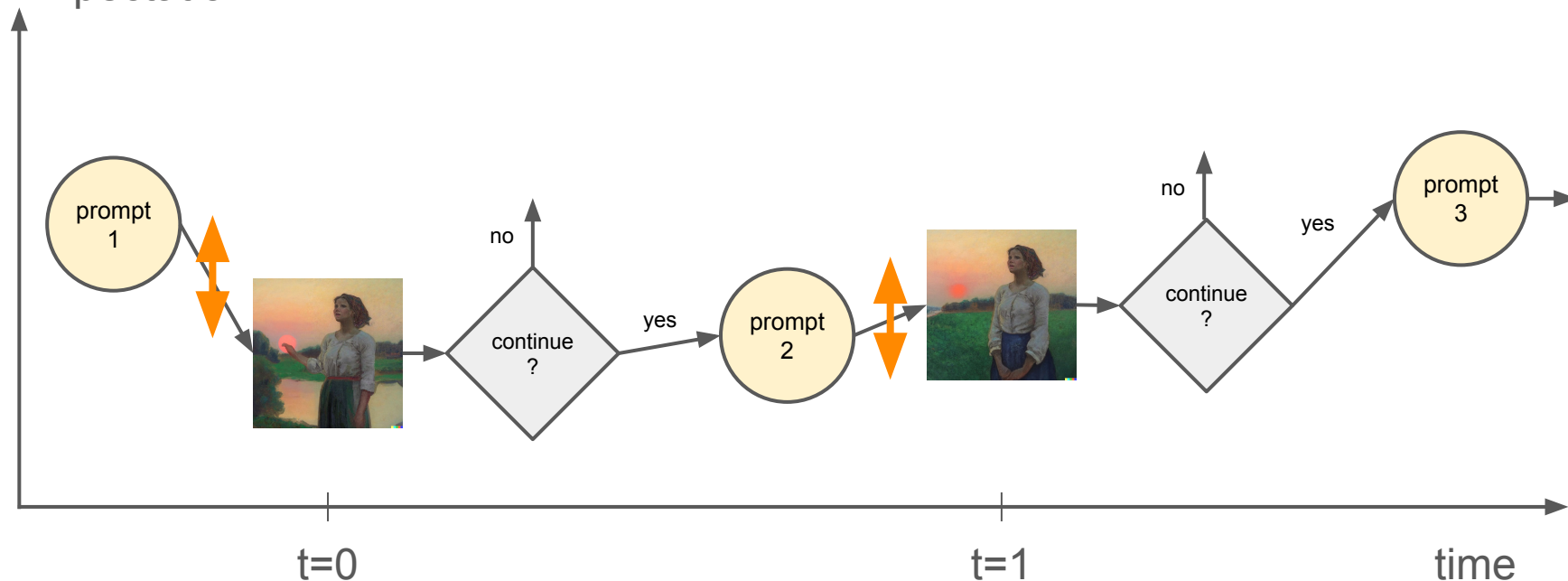
The Creative Process with Generative AI



Misalignment

The Creative Process with Generative AI

User's
Expectation



The Creative Process with LLMs

The Impact of Generative AI on Critical Thinking: Self-Reported Reductions in Cognitive Effort and Confidence Effects From a Survey of Knowledge Workers

Hao-Ping (Hank) Lee
Carnegie Mellon University
Pittsburgh, Pennsylvania, USA
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Lev Tankelevitch
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Cambridge, United Kingdom
levt@microsoft.com

Richard Banks
Microsoft Research Cambridge
Cambridge, United Kingdom
rbanks@microsoft.com

Thank you



Prompt engineering for text-to-image generation:

- Output control
- Interaction
- Creativity
- Misalignment

Contact Information:

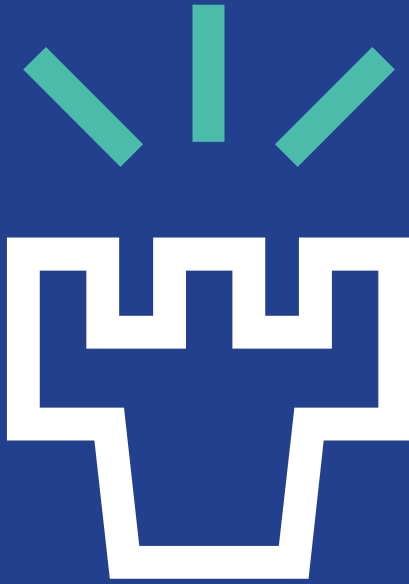
Jonas Oppenlaender

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jonas.oppenlaender@oulu.fi

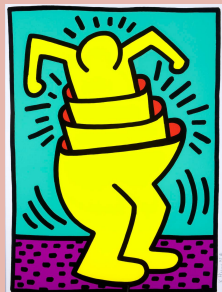
<https://www.oulu.fi/en/researchers/jonas-oppenlaender>

<https://www.jonaso.de>



**UNIVERSITY
OF OULU**

Input



Selected artwork

Pose image



Tablet/Web App
(camera booth)

AWS
API
Gate
way

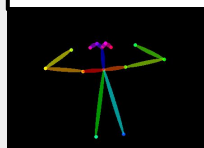
CLIP
Inter-
rogator

Prompt

"a painting of a man in a yellow shirt is dancing, **keith harring**, overturned chalice, 1128x191 resolution, six packs, -h 640, pot, 2708519935, high detail product photo"

Pose
detection
(openpose)

Pose



style
adapter

pose
adapter

T2I
Adapter

StableDiffusion
1.4
ControlNet

Negative
prompt

"(((**nsfw**))), (((text))), (((words))), ((low quality)), worst quality, bad quality, ((bad art)), lowres, ((disfigured)), ((deformed)), ((mutilated)), glitch, ((distorted)), malformed, mutated, (((disfigured))), misaligned, poorly drawn, (((blurry))), ..."

Upscaler
Real-ESRGAN
2x

Reimagined
Artwork



Public: Display
Private: Laptop

Output